AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning on page 2, line 16, as follows:

Alternatively, a second preferred embodiment of the present invention employs a two-part thin metal plate or metal foil differing from that of the '279 patent in that the second or top layer of metal is a perforated thin plate or metal foil. The perforations on the top side of the second (top) layer serve to facilitate a mechanical bond via the concrete oozing through the perforations and acting as a "cementitious rivet" between the top side of the second layer and the bottom side of the surface of the underlayment above this second (top) layer. This mechanical bond acts in addition to any chemical bond formed between the bottom side of the underlayment surface and the remainder of the upper surface of this second (top) perforated layer. This second preferred embodiment must employ a solid thin metal plate or metal foil as a first (bottom) layer to block passage of moisture through the path provided by the underlayment material, typically concrete, that, upon installation, oozed through the perforations in the second (top) layer of perforated thin metal plate or metal foil. That is, if a perforated second (top) layer of a two-part thin metal plate or metal foil is used to achieve a better bond, then the first (bottom) layer must be solid, and conversely, if a perforated first (bottom) layer is used, then the second (top) layer must be solid.

Please amend the paragraph beginning on page 4, line 8, as follows:

In another method of installing the second preferred embodiment, a two-part thin metal plate or two-part metal foil is used in which the second (top) layer incorporates perforations and the first (bottom) layer is solid.

Please amend the paragraph beginning on page 4, line 11, as follows:

In yet another method of installing the second preferred embodiment, the immediately above method of installation may be applied using a two-part thin metal plate or two-part metal foil in which the first (bottom) layer incorporates perforations and the second (top) layer is solid.

Please amend the paragraph beginning on page 4, line 20, as follows:

Embodiments of the present invention are not limited to underlayments but may be used on vertical or slanted surfaces where protection from fluid intrusion is desired. Further, a "one-way" vapor barrier may be installed to prevent intrusion of fluids while permitting expulsion of the same fluids or vapors. Instead of a metal foil or thin metal plate, a special "breathing" polyester such as those marketed under the trademark ~~Goretex®~~ GORETEX® (waterproof breathable material) may be used in place of metal. This would have particular application in below grade applications such as basement floors or walls and in environments of high humidity such as kitchens or bathroom floors or walls that otherwise "sweat." In addition to embedding the ~~Goretex®~~ GORETEX® (waterproof breathable material) lining in concrete on a slab, it could be embedded just beneath a porous outer stucco or similar coating to achieve the same effect as the metal barrier does in the underlayment while also permitting "out gassing" of vapors from within the room.

Please amend the paragraph beginning on page 7, line 19, as follows:

Refer to Figs. 3A, 3B and 7. Also provided in a preferred embodiment of the present invention is a configuration 310 such as shown in Fig. 3A or the configuration 320 shown in Fig. 3B implementing a barrier to fluid flow in at least one direction and enclosed within porous material. Either configuration 310, 320 uses a durable top section 313 applied over the barrier panel 100 placed upon adhesive 312 coated on a first section 311 of the porous material. Either configuration 310, 320 is thus made suitable for routine use by wheeled traffic. Both configurations comprise:

at least one layer of adhesive 312 applied to a top surface of the porous material comprising a base 311, e.g., thin set mortar applied to a concrete slab;

panels 100 of non-porous material having edges 102 suitable for overlapping, e.g., pleated edges, as shown at 701 of Fig. 7, affixed to a topmost layer of adhesive 312 so as to completely cover the adhesive 312,

a flexible sealant as shown at 702 of Fig. 7 applied between the overlapping edges as shown at 701 of Fig. 7; and

the topmost section 313 emplaced upon ~~said~~ the panels 100 so as to completely cover all ~~said~~ the panels 100, ~~said~~ the topmost section 313 incorporating ~~said~~ the top surface suitable for routine use by wheeled traffic.

Please amend the paragraph beginning on page 8, line 21, as follows:

Refer to Figs. 2A, 2B, and 3B. In a preferred embodiment of the configuration, the panels 100 are plates of a total thickness less than about 6 mm (¼"). In an alternate preferred embodiment, the panel 100 comprises a first perforated plate 210 abutted about its entire surface area to a second solid plate 220, i.e., a two-layer panel 100, each of the first 210 and second 220 plates being of a total thickness of less than about 3 mm (1/8"). A preferred configuration places a first perforated plate 210 "layer" immediately adjacent the bottom side of the topmost section 313, e.g., the finish layer of concrete. A generic two-layer configuration 321, 322 representing this preferred configuration is shown in Fig. 3B. The first perforated plate 210 would be placed at 321 in Fig. 3B and the second solid plate 220 at 322 in Fig. 3B.

Please amend the paragraph beginning on page 9, line 1, as follows:

Refer to Figs. 2A, 2B, and 3B. In an alternate preferred embodiment of the configuration, the panels 100 comprise a multi-layer foil of a thickness less than about 2 mm (0.008 inch) and preferably in the range of about 0.5–1.5 mm (20–60 mil), and may be represented as in Fig 3B as a perforated foil (such as depicted in Fig. 2 at 210) at 321 and a solid foil (such as depicted in Fig. 2 at 220) at 322. Each of the foil layers 210, 220 in a two-layer foil 321, 322 used in a preferred embodiment of the present invention has a total thickness of less than about 1 mm (0.004 inch) and preferably in the range of about 0.25 –0.76 mm (10–30 mil).

Please amend the paragraph beginning on page 9, line 9, as follows:

Refer to Figs. 1, 3A, 6A and 6B. In yet another preferred embodiment, the configuration employs panels 100 comprising three-layers, two identical configurations as shown at 600, and a single flat configuration as shown at 610. In Fig. 6A, the adhesive 602 is shown as it oozes into the folds of the foil or thin metal from the layers of porous material (not shown separately in Fig. 6A) above and below the foil or thin metal

configuration 600. In Fig. 6B, by contrast, the adhesive 620 is placed to adhere to the portion of the thin foil or thin metal configuration 600 in direct contact with a separate middle layer 610 as described immediately below. These configurations 600, 610 may be metal (or composite) foil or thin metal (or composite) sheets or plates. The top 600 and bottom 600 layers of the three-layer panel 600, 610 may be perforated, a solid that is folded or pleated, and combinations thereof, while the middle layer 610 must be solid if both the top and bottom layers 600 are perforated. As foils, the layers 600, 610 each may be of a thickness less than 1.0 mm (40 mil) and more preferably less than about 0.76 mm (30 mils) and most preferably in a range of thickness from about 0.25–0.76 mm (1.0–3.0 mil).

Please amend the paragraph beginning on page 9, line 18, as follows:

A preferred method of implementing an embedded barrier comprises:

applying at least one layer 312 of adhesive, such as a thin set mortar, to an entire first surface of the porous material of the base 311, e.g., a concrete slab, prior to emplacing the topmost section 313, e.g., a finish layer of concrete;

placing panels 100 of non-porous material, such as a metal or composite plate or metal or composite foil, upon a topmost layer 312 of adhesive (if more than one layer of adhesive is used), overlapping edges 102 of each panel 100 with edges of any panels 100 placed adjacent thereto in the same plane along the topmost layer 312 of adhesive such as shown at 701 in Fig. 7, and

completely covering the topmost adhesive layer 312 with the overlapping panels 100;

establishing a seal 702 as shown in Fig. 7 between all the overlapped panel edges 701; and

emplacing at least one layer of material comprising a topmost section 313 upon the panels 100 such that each panel 100 is confined below the topmost section ~~312~~ 313 and above a topmost layer 312 of adhesive.

Please amend the paragraph beginning on page 11, line 17, as follows:

Refer to Figs. 2A, 2B, and 3B. In an alternate preferred method, the method employs panels 100 comprising multi-layer foil of a thickness less than about 4 mm (0.16 inch), and more preferably less than about 2.5 mm (100 mils), and most preferably about 0.5 mm to 1.5 mm (20–60 mils). In yet another alternate preferred method, the panels 100 comprise a first perforated foil 210 as a first layer 321 of a two-layer foil 321, 322, the second layer 322 being a solid foil 220. Each of the first and second foil layers 321, 322 has a total thickness of less than about 2 mm (0.08 inch), and more preferably less than about 0.76 mm (30 mils), and most preferably about 0.25 mm to 0.76 mm (10–30 mils). In a preferred embodiment, the first perforated foil 210 is placed immediately adjacent the bottom side of the topmost section 313 as shown at 321.

Please amend the paragraph beginning on page 11, line 27, as follows:

Refer to Figs. 1, 3A, 6A and 6B. In yet another preferred embodiment, the method employs panels 100 comprising three-layers, two identical configurations as shown at 600, and a single flat configuration as shown at 610. These may be metal (or composite) foil or thin metal (or composite) sheets or plates. The three layers 600, 610 are bonded together by any of a number of suitable means, such as by gluing, heating, applying pressure, soldering, tack welding, or combinations of the above. The top 600 and bottom 600 layers of the three-layer panel 600, 610 may be perforated, a solid that is folded or pleated, and combinations thereof, while the middle layer 610 must be solid if both the top and bottom layers 600 are perforated. As foils, the layers 600, 610 each may be provided in a thickness less than 1.0 mm (40 mil) and more preferably less than about 0.76 mm (30 mil) and most preferably in a range in thickness from about 0.25–0.76 mm (1.0–3.0 mil).

Please amend the paragraph beginning on page 12, line 21, as follows:

Refer to Figs. 2A, 2B and 3B. Fig. 2A depicts the perforated piece 210 of a two-piece thin metal plate (or foil) structure shown installed in Fig. 3B at 321, 322. The perforations 212 in the main part 211 of this perforated piece 210 facilitate bonding of the

metal plate (or foil) structure to either the adhesive layer 312 or the overlaying finish layer 313 as shown in the resultant multi-layered structure 320 of Fig. 3B. The solid piece 220 of the two-piece thin metal plate (or foil) is shown installed as one of the layers in Fig. 3B at 321, 322.The configuration 320 of Fig. 3B facilitates additional mechanical bonding of the two-piece plate 321, 322, to either the adhesive layer 312 or the finish layer 313, but not both while providing a solid interface to prevent moisture or vapor flow from beneath the underlayment 311. A preferred method of installation is to mount the perforated piece 210 against the finish layer 313 and the solid piece 220 against the adhesive layer 312. In the case of a concrete finish layer 313, this provides protection for the mechanical bond developed by the concrete ~~oozes~~ oozing into the perforations 212 in the perforated piece 210 since no moisture or vapor passes through the solid piece 220 mounted next to the adhesive layer 312, for example, thin set mortar in the case of a concrete underlayment 311. Although the perforations 212 are shown as circular holes in Fig. 2A, other means of perforation may be used. For example, the perforated piece 210 may comprise metal screen material very similar to that used in screening windows to prevent insect ingress, a wire mesh, or combinations of types of perforations. Also shown in Figs. 2A and 2B are alternative edges 102 that facilitate flexion of the installed two-piece plate (or foil) 210, 220 in much the same manner as described above for the one-piece configuration 100 of Fig. 1. The two pieces 210, 220 may be joined together prior to installation by any of a number of means such as application of adhesive to parts of their adjoining surfaces, mechanically pressing edges together, soldering, welding, and combinations of these means. Further, the two pieces 210, 220 may be installed separately and either joined as would be done in methods described above for joining prior to installation or simply placed one above the other as part of the installation with the weight of the finish layer 313 and the adhesion of the adhesive layer 312 serving to maintain proper alignment. Adjacent two-piece plates (or foils) 210, 220 may be connected in the same manner as for the ~~one-pieced~~ one-piece plates (or foils) 100 as described above.

Please amend the paragraph beginning on page 14, line 4, as follows:

Refer to Fig. 5. In much the same way as expansion joints 401 are provided for in underlayments 311, the joint 501 between a floor and a wall 504 is also subject to movement and a preferred embodiment 500 of the present invention provides for addressing this joint 501 also. The bridge 502 used in this application is affixed at one end to the underlayment in the same manner as for the in-floor expansion joint ~~402~~ 401. The bridge 502 is bent at a right angle to permit installation along the adjoining wall 504 to a point just above the top of the finish layer 313. A bead 503 of suitable flexible sealant, such as any of a number of commercial RTV sealants, is applied along the entire length of the bridge 502 at the wall 504.

Because the apparatus claims have been restricted, please amend the Abstract beginning on page 21, line 2, as follows:

A method for implementing a barrier to fluid passage in which the barrier is embedded within, instead of atop, porous material. This ~~to~~ retains the durability of the surface of the porous material. In one embodiment, a thin set mortar is applied to a concrete slab. A pleated metal foil is pressed into the wet mortar and a bond is established. The mortar is allowed to set and a top, or finish, section of concrete is then poured over the foil and finished conventionally. Provisions are made for sealing expansion joints in concrete slab floors and at the juncture of floor and wall. The foil may be provided in multiple layers to provide a mechanical bond via ~~the concrete or~~ mortar oozing through perforations or along pleats in each of the top and bottoms layers ~~of the multi-layer foil~~, while providing ~~at least one~~ a solid layer through which a fluid will not pass, at least in one direction.